

### **AMENDMENTS TO THE CLAIMS**

1. (Original) A radio network designing apparatus for designing a radio network that covers a plurality of cells through radio waves from base stations, comprising:

an objective function extractor for setting up an optimizing condition that at least includes an objective function that has a radio parameter of said base station as the objective function parameter and that is used for an optimization process carried out by a computer to balance traffic loads between a plurality of cells, by using cell balance values between a target cell whose characteristic changes by modification of the parameter and multiple neighboring cells existing around the target cell; and

an optimizer for performing an optimization process in accordance with said optimizing condition set by said objective function extractor to determine the value of said parameter to be the solution,

wherein said objective function is a representative value of the cell balance values between said target cell and said multiple neighboring cells.

2. (Previously presented) The radio network designing apparatus according to Claim 1, wherein said objective function extractor sets up an objective function that the closing to a target value means the better balance between the cells, as said optimizing condition; and said optimizer performs optimization so that said objective function approaches the target value by modifying said parameter.

3. (Canceled)

4. (Currently amended) The radio network designing apparatus according to Claim [[3]] 1, wherein said representative value used as said objective function is [[the]] a maximum and minimum of the cell balance values between said target cell and said multiple neighboring cells.

5. (Original) The radio network designing apparatus according to Claim 1, wherein said objective function extractor sets up an objective function showing the degradation ratio of an

important area and constraint condition that closing to a target value means the better balance between the cells, as said optimizing condition; and said optimizer performs optimization so as to reduce the value of said objective function by modifying said parameter within the range in which said constraint condition satisfies a predetermined relationship with said target value.

6. (Original) The radio network designing apparatus according to Claim 5, wherein said constraint condition is the representative value of the cell balance values between said target cell and said multiple neighboring cells.

7. (Original) The radio network designing apparatus according to Claim 6, wherein said representative value used as said constraint condition is the maximum and minimum of the cell balance values between said target cell and said multiple neighboring cells.

8. (Previously presented) The radio network designing apparatus according to Claim 1, wherein said cell balance value is a traffic load ratio between said target cell and said neighboring cell.

9. (Previously presented) The radio network designing apparatus according to Claim 1, wherein said cell balance value is a cell area ratio between said target cell and said neighboring cell.

10. (Previously presented) The radio network designing apparatus according to Claim 1 wherein said parameter is the tilt angle of the antenna of said base station.

11. (Previously presented) The radio network designing apparatus according to Claim 1, wherein said parameter is the transmission power from the antenna of said base station.

12. (Currently amended) A radio network designing method for designing a radio network that covers a plurality of cells through radio waves from base stations, [[comprising]] the method causing a computer to execute the steps of:

setting up an optimizing condition that at least includes an objective function that has a radio parameter of said base station as the objective function parameter and that is used for an

optimization process to balance traffic loads between a plurality of cells, by using cell balance values between a target cell whose characteristic changes by modification of the parameter and multiple neighboring cells existing around the target cell; and

performing an optimization process in accordance with said set optimizing condition to determine the value of said parameter to be the solution,

wherein said objective function is a representative value of the cell balance values between said target cell and said multiple neighboring cells.

13. (Original) The radio network designing method according to Claim 12, further comprising the steps of:

setting up an objective function that closing to a target value means the better balance between the cells, as said optimizing condition; and

performing optimization so that said objective function approaches the target value by modifying said parameter.

14. (Canceled)

15. (Currently amended) The radio network designing method according to Claim [[14]] 12, wherein said representative value used as said objective function is [[the]] a maximum and minimum of the cell balance values between said target cell and said multiple neighboring cells.

16. (Original) The radio network designing method according to Claim 12, further comprising the steps of:

setting up an objective function showing the degradation ratio of an important area and constraint condition that closing to a target value means the better balance between the cells, as said optimizing condition; and

performing optimization so as to reduce the value of said objective function by modifying said parameter within the range in which said constraint condition satisfies a predetermined relationship with said target value.

17. (Original) The radio network designing method according to Claim 16, wherein said constraint condition is the representative value of the cell balance values between said target cell and said multiple neighboring cells.

18. (Original) The radio network designing method according to Claim 17, wherein said representative value used as said constraint condition is the maximum and minimum of the cell balance values between said target cell and said multiple neighboring cells.

19. (Previously presented) The radio network designing method according to Claim 12, wherein said cell balance value is a traffic load ratio between said target cell and said neighboring cell.

20. (Previously presented) The radio network designing method according to Claim 12, wherein said cell balance value is a cell area ratio between said target cell and said neighboring cell.

21. (Previously presented) The radio network designing method according to Claim 12, wherein said parameter is the tilt angle of the antenna of said base station.

22. (Previously presented) The radio network designing method according to Claim 12, wherein said parameter is the transmission power from the antenna of said base station.

23. (Currently amended) A non-transitory computer-readable medium containing a radio network designing program for enabling a computer to design a radio network that covers a plurality of cells through radio waves from base stations, said non-transitory computer-readable medium causing the computer to: ~~program comprising instructions for setting~~

set up an optimizing condition that at least includes an objective function that has a radio parameter of said base station as the objective function parameter and that is used for an optimization process to balance traffic loads between a plurality of cells, by using cell balance values between a target cell whose characteristic changes by modification of the parameter and multiple neighboring cells existing around the target cell; and

perform [[performing]] an optimization process in accordance with said set optimizing condition to determine the value of said parameter to be the solution,

wherein said objective function is a representative value of the cell balance values between said target cell and said multiple neighboring cells.

24. (Currently amended) A radio network designing apparatus for designing a radio network that covers a plurality of cells through radio waves from base stations, comprising:

objective function extracting means for setting up an optimizing condition that at least includes an objective function that has a radio parameter of said base station as the objective function parameter and that is used for an optimization process to balance traffic loads between a plurality of cells, by using cell balance values between a target cell whose characteristic changes by modification of the parameter and multiple neighboring cells existing around the target cell; and

optimizing means for performing an optimization process in accordance with said optimizing condition set by said objective function extracting means to determine the value of said parameter to be the solution,

wherein said objective function is a representative value of the cell balance values between said target cell and said multiple neighboring cells.